

CLAIMS:

1. A semiconductor laser device comprising:
a substrate;
a first mirror structure disposed over a first surface of the substrate;
an active region disposed over the first mirror structure;
a second mirror structure disposed over the active region; and
a first contact disposed on a second surface of the substrate;

wherein the second mirror structure has a first portion having a first width and a second portion having a second width less than the first width, the first portion being disposed between the second portion and the active region; wherein an etching stop layer is disposed over the first portion of the second mirror structure, the second portion of the second mirror structure being disposed over the etching stop layer; and wherein a second contact is disposed over at least part of the surface of the first portion of the second mirror structure not covered by the second portion of the second mirror structure.

2. A laser device as claimed in claim 1 wherein the second contact is arranged substantially symmetrically with respect to an axis of the laser device.
3. A laser device as claimed in claim 1 wherein the second contact is annular.
4. A laser device as claimed in claim 1 wherein the second contact is disposed directly on the etching stop layer.
5. A laser device as claimed in claim 1 wherein the etching stop layer is a strained semiconductor layer.
6. A laser device as claimed in claim 1 wherein the etching stop layer is non-absorbing or is substantially non-absorbing for light having a wavelength equal to the intended emission wavelength of the laser device.

7. A laser device as claimed in claim 5 wherein the etching stop layer is non-absorbing or is substantially non-absorbing for light having a wavelength equal to the intended emission wavelength of the laser device.
8. A laser device as claimed in claim 1 wherein the thickness of the etching stop layer is approximately $\lambda/4n$, where λ is the emission wavelength of the laser and n is the refractive index of the etching stop layer.
9. A laser device as claimed in claim 5 wherein the thickness of the etching stop layer is approximately $\lambda/4n$, where λ is the emission wavelength of the laser and n is the refractive index of the etching stop layer.
10. A laser device as claimed in claim 6 wherein the thickness of the etching stop layer is approximately $\lambda/4n$, where λ is the emission wavelength of the laser and n is the refractive index of the etching stop layer.
11. A laser device as claimed in claim 7 wherein the thickness of the etching stop layer is approximately $\lambda/4n$, where λ is the emission wavelength of the laser and n is the refractive index of the etching stop layer.
12. A laser device as claimed in claim 1 and further comprising a cap layer disposed over the second mirror structure.
13. A laser device as claimed in claim 12, wherein the cap layer has thickness of less than 10nm.
14. A laser device as claimed in claim 1 wherein the first mirror structure is doped n-type and the second mirror structure is doped p-type.
15. A laser device as claimed in claim 1 wherein the first and second mirror structures each comprise an (Al,Ga)As layer structure.

16. A laser device as claimed in claim 1 wherein the active region comprises an (Al,Ga)InP layer structure.
17. A laser device as claimed in claim 1, wherein the etching stop layer is an (Al,Ga)InP layer.
18. A laser device as claimed in claim 17 wherein the etching stop layer is a GaInP layer.
19. A laser device as claimed in claim 12, wherein the cap layer is a GaAs cap layer.
20. A laser device as claimed in claim 1 and having an emission wavelength in the range of 600nm to 700nm.
21. A laser device as claimed in claim 1 and having an emission wavelength in the range of 630nm to 680nm.
22. A laser device as claimed in claim 1 and having an emission wavelength in the range of 650nm to 660nm.
23. A laser device as claimed in claim 1 wherein the laser device is a vertical cavity surface emitting laser device.